

# UNITED STATES FOREST SERVICE



## National Night Air Operations Plan

2017

# Table of Contents

<b>Signatures and Approval</b> .....	4
<b>Scope</b> .....	5
<b>Authority</b> .....	5
<b>Definitions</b> .....	6
<b>Safety Management System</b> .....	7
<b>Risk Management</b> .....	8
<b>Fixed Wing Aircraft and Pilot Requirements</b> .....	9
<b>Chapter 1 NightWatch</b> .....	11
<b>Program</b> .....	11
<b>Organization</b> .....	11
<b>Personnel Mobilization</b> .....	12
<b>Daily Briefings</b> .....	13
<b>Incident Response</b> .....	13
<b>Incident Operations</b> .....	13
<b>Intelligence, Surveillance, Reconnaissance</b> .....	14
<b>Duty Day and Transitions</b> .....	14
<b>Contract Management</b> .....	15
<b>Maintenance</b> .....	15
<b>Training and Certification</b> .....	16
<b>Proficiency Flights</b> .....	16
<b>ATGS Demobilization</b> .....	17
<b>Chapter 2 Night Helicopter Operations</b> .....	18
<b>Crew Organization</b> .....	18
<b>Training</b> .....	18
<b>Certification</b> .....	19
<b>Duties and Responsibilities</b> .....	19
<b>Equipment</b> .....	20
<b>Operational Planning</b> .....	21

<b>Pre-initial attack</b> .....	21
<b>Initial Attack</b> .....	22
<b>Briefing</b> .....	22
<b>Aircraft Base Radio Operator (ABRO) and Helispot Managers (HESM)</b> .....	23
<b>ABRO and NVG Parking Tender</b> .....	23
<b>NVG Helicopter Manager</b> .....	23
<b>Flight Following</b> .....	24
<b>Helispots/Helibases</b> .....	24
<b>Water Drops</b> .....	25
<b>Emergencies</b> .....	25
<b>After Action Review</b> .....	25
Appendix A-Hazard Maps.....	16
Appendix B-NightWatch OJT.....	17
Appendix C-Forms .....	19
<b>Pre-Flight Weather Observation</b> .....	20
<b>Operational Risk Management (ORM)</b> .....	21
<b>Pre-Flight Preparation for NVG Use</b> .....	19
<b>Helicopter Night Operations Training Plan</b> .....	20
<b>Night Training Exercise</b> .....	21
<b>Checklist for Multiple Resources, Helibase</b> .....	26
<b>Optional Use Period</b> .....	28
<b>Pre-Flight Preparation for NVG Use</b> .....	29
Appendix D-Helicopter Standard Operations Guide .....	30
Appendix E-Initial Action Response Zone.....	31

2017 National Night Air Operations Plan

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Date:

04/11/17

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## **Scope**

This document provides information for the use of US Forest Service (USFS) aircraft at night to enhance safety and operational effectiveness through the establishment of standardized operational guidelines and minimum qualification standards for the specialized aviation positions. For interagency night flying operations the USFS utilizes FIRESCOPE for operational guidance.

## **Authority**

The Pacific Southwest Regional Aviation Group is responsible for the update and completion of this guide with oversight provided by National Night Air Operations Steering Committee (NNOSC). Authorization is granted by the Chief of the Forest Service and receives leader's intent and direction from the Director of Fire and Aviation Management.

The Night Flying Helicopter and Night Flying Aerial Supervision Platform are administered and operated by the Pacific Southwest Region with program direction and quality assurance provided by NNOSC.

All night flying operations shall be conducted in accordance with FSM 5716.2, 5716.21 and the National Night Air Operations Plan.

## Definitions

**Aided Flight:** An aided flight is a VFR flight at night where the pilot of an aircraft uses night vision goggles (NVG) in an operational position to maintain visual reference to the surface and to enhance safety through situational awareness of the surroundings.

**Lighted Airport:** An airport where runway and obstruction lighting is available.

**Nighttime:** Defined by 30 minutes after official sunset until 30 minutes before to official sunrise.

**Night Flying Guidelines (NFG):** FIRESCOPE's interagency document on Night Flying.

**Night Vision Goggles (NVG):** NVG are a head-mounted, lightweight, and self-contained binocular appliance that amplifies ambient light. NVG's are worn by crew members and are used to enhance the crew member's ability to maintain visual reference to the surface at night. Goggles are an integral part of the overall Night Vision Imaging System, not the entire system.

**NVG Flight Operation:** A flight or operation during any part of which NVG are used by flight crew member(s) in an aircraft which is NVG equipped and approved for NVG operations.

**NVG Flight Time:** The flight time gained by a flight crew member during a NVG flight operation.

**Quality Assurance:** The process of verifying or determining whether products or services meet or exceed customer expectations. Quality assurance management includes planning and checking standards while quality controls are specific standards that mitigate risk.

**Risk Management:** A formal process within the SMS that describes the system, identifies the hazard, assesses the risk, analyzes the risk, and controls the risk. The risk management process is embedded in the process used to provide the product/service; it is not a separate/distinct process.

**Unaided Flight:** Unaided flight is a nighttime flight conducted without the use of NVG, or a flight with NVG in the non-operational position.

## **Safety Management System**

The objective of a Safety Management System (SMS) is to provide structure to control risk and assure quality in operations. A formal system of hazard identification and risk management is essential in controlling risk to acceptable levels. System Safety is centered on an organized approach to hazard identification and risk management with intent to minimize the effect on property, financial, environmental, human and societal losses.

Participants in System Safety continually challenge the processes, the culture, and the systems to identify weaknesses that can be mitigated toward the greater purpose of mishap prevention.

The foundation of SMS consists of four “components,” they are Policy, Risk Management, Quality Assurance and Promotion. When fully implemented SMS provides and promotes a Positive Safety Culture. The desired positive Safety Culture is informed, flexible, learning, just and a reporting culture that captures the operational knowledge and experience of the employees.

Per FSM 5720.3 the Forest Service is committed to developing, implementing and continuously improving the aviation program. Our number one job is to protect our most valuable resources-our employees. Unless we do that, we cannot be a world-class leader in natural resource management. Every line officer, manager, supervisor, and employee has the responsibility to manage risk exposure. That means identifying and abating hazards, refusing to accept unnecessary risk, and making risk-related decisions at the appropriate level.

In 2009, the United States Forest Service adopted Aviation Safety Management System (ASMS) as the guiding model to achieve zero accidents. On June 20th, 2011 the Aviation Safety Management Systems Guide became policy and can be found in its entirety at:

[http://www.fs.fed.us/fire/av\\_safety/index.html](http://www.fs.fed.us/fire/av_safety/index.html).

The ASMS guide should be utilized by all aviation personnel to meet or exceed aviation industry best practices and standards for safety.

Per FSM 5720.2, the primary objective for the Forest Service aviation program is to operate aviation services by completing all missions safely and without mishap. In addition; the Forest Service is required to comply with all Federal Management Regulations (FMR) for aircraft management (41 CFR 102-33), and with all contract and related helicopter operational guides.

## **Risk Management**

It is the responsibility of every Forest Service employee to manage risk to the lowest practical level. The flight crew will refer to the NVG Programmatic Operational Risk Assessment (ORM) to ensure that the “best practices standards” are being met.

It is the responsibility of both management and the flight crew to ensure that the mission gained exceeds the risk and expense. The flight crew has the final say if they will accept the mission.

The flight crew is required to complete the following risk measures before engaging in firefighting operations:

- Night Operations Risk Assessment
- NVG Mission GO-NO GO Checklist
- Pre-Flight Weather Operations Checklist
- Night Operations Checklist for Multiple Aviation Resources
- Quality Assurance

Any mishaps or incidents will be reported via the SAFECOM Reporting System to ensure hazards are identified, monitored, mitigated and lessons learned are shared.

The National Office, Regional Office, and Forest will provide oversight, quality assurance and review of night flying operations throughout the field season. The above will be accomplished by the following:

- Contractor Compliance Audits - at the Regional and National level
- Operational Reviews – all levels of management
- Base Reviews – all levels of management

Training and communication are the key components that promote a “Learning Culture” to ensure that Night Flight Operations are conducted at an acceptable level of risk. The following will be accomplished by:

- All Forest Service employees involved in the night flying operations program are encouraged to communicate freely. Lead Up, Lead Down, Lead Laterally
- All training in the NVG Training Syllabus will be accomplished
- New technologies and training will be continually evaluated and considered



# **Fixed Wing Aircraft and Pilot Requirements**

## **Aircraft Capability**

- Seven day effective staffing during the mandatory contract performance period. June 1 1800 through November 27, 0600.
- King Air 200. turbine powered multi engine aircraft with a cruise speed of 250 knots indicated or better with pressurization.
- Aircraft fuel endurance of 4 or more hours not including a 45 minute reserve.
- Aircraft must have a training station on the right side of the aircraft behind the right front seat that has full access and functionality to the avionic suite from the rear trainer position, full radio operability for transmission and receiving selecting.
- 3 P25 compliant VHF FM radios, panel mounted and accessible to the ATGS.
- 3 VHF AM radios, panel mounted and accessible to the ATGS.
- Configured for operation and viewing (Multiple display) from the ATGS and/or ATGS trainer seats.
- Audio and video mission recording capability.
- Accessory Power Source.
- Automated Flight Following (AFF) system
- Panel Mounted GPS Unit.
- GPS with Moving Map.

## **Aircraft Recommended Requirements**

- Video and/or image data down link from aircraft to ground.

## **Pilot Minimum Requirements**

- Each PIC shall, at the discretion of the CO, pass a Government evaluation ride (not to exceed 2-hours).
- The PIC shall hold a current valid FAA commercial or higher Pilot certificate with current total hours equal to or above:

### Fixed Wing Flight Hours Experience

All Airplanes	Flying hours
Total time	1500
Pilot-in-Command total	1200
Pilot-in-Command	Flying Hours
Category and class to be flown	200
Fixed wing – preceding 12-months	100
Cross Country	500
Operations in low level mountainous terrain*	400
Night Flying	200
Instrument – in flight	50
Instrument – actual/simulated	75
Make & Model to be flown	25
Make & Model - preceding 12 months	10

*\*Low level mountainous terrain is flight at 2500 feet AGL or below in terrain identified as mountainous in 14 CFR 95.11 and depicted in the Aeronautical Information Manual (AIM) Figure 5-6-2.*

# Chapter 1 NightWatch

## Program

NightWatch is the combination of a contracted Exclusive Use Fixed Wing Aircraft (Air Attack 51) and qualified Air Tactical Group Supervisors who have completed additional training related to Intelligence, Surveillance and Reconnaissance (ISR) technologies. This program provides enhanced situational awareness, near real time information relay and aerial supervision in support of the NNAO and interagency all hazard incidents in the Southern California Operations Area of the Pacific Southwest Region.

## Organization



## Prior to Arrival

The Night ATGS(s) will read and understand the National Night Air Operations Plan and FIREScope Night Flying Guide:

- [FIREScope Night Flying Guide](#)

Carry an enhanced ATGS kit with illumination device. Examples of some illumination devices used are:

- Flashlight
- Headlamp with or without color filter
- Penlight with light and ink on same side of instrument
- Knee board light
- Lip/Mic light

The Regional Aerial Supervision Program Manager (ASPM) will maintain the staffing schedule of the night ATGS's. The ASPM will make every effort to avoid a simultaneous pilot/ATGS change-out. It is the responsibility of the assigned air attack to request a resource order for their relief through

the Angeles National Forest Emergency Communication Center (ECC) using established processes. This should be completed at least 3 days in advance of reporting date and time.

## **Personnel Mobilization**

After obtaining a resource order the responding ATGS will notify Northern Operations Geographic Coordination Center (NOPS) of travel itinerary and text the following individuals with ETD/ETA.

### Before Departure:

- Walter Bunt, R-5 Aerial Supervision Program Manager (ASPM)
- Stan Kubota, R-5 Fixed Wing Ops Specialist (FWOS)
- Phil Hawkins, R-5 FireWatch Program Manager (FWPM)

Adhere to travel and work-rest guidelines when mobilizing/demobilizing and resetting work schedule for Night ATGS duty, [National Interagency Mobilization Guide](#).

### Upon Arrival:

- Notify Southern Operations Coordination Center (SOPS) of arrival at your assigned location
- Send “Arrived” text message to FWOS, ASPM and FWPM
- When you arrive at aircraft base for your first shift check in with Hosting ECC and update contact board name(s), phone number(s) and assignment dates
- Establish contact with night flying helicopter Superintendent and participate in briefings

### First Operational Shift:

As needed, make contact with the Forest Aviation Officer and Airtanker Base Manager supporting your assignment(s) for local information. The Regional Aviation Group (RAG) building at Fox Field is the standby location for the ATGS.

- Aircraft orientation
- Emergency procedures
- CRM mission specific duties
- Special mission equipment, etc.
- Perform an aircraft inspection
- Visual Inspection (Walk Around)
- Check radios for correct programming
- Confirm fuel load
- Start-up computer, IR and camera systems

## Daily Briefings

The night ATGS(s) will participate in the night operations briefing with the night flying helicopter either in person or via telecommunication when possible. Briefing should occur at the beginning of the shift, usually within one hour of start.

## Incident Response

The USFS South Operations Area Duty Chief is the authority for all mobilizations of AA-51. The dispatching/hosting ECC will make contact with the assigned ATGS and provide a complete FC-106 dispatch form with incident specific information before the aircraft will respond. Inflight divers will be given in the same format and “blank” FC-106 forms are kept on the aircraft for this purpose.

The NightWatch aircraft is mobilized in the same manner as a day time Air Tactical Platform and can operate and RON at locations agreed upon by the Incident Commander, SOPS Duty Chief and ATGS. ATGS will coordinate with South Ops (SOPS) Federal Aircraft desk and ECC at the beginning of each shift to status the asset and receive fire activity updates. Aircraft weight and balance with manifest and performance sheet will be posted on the bulletin board in the night ATGS office. Requesting units that order night operational aircraft will have their ECC staffed with qualified aircraft dispatchers during night aircraft operations. Items to consider;

- Normal duty day for the resource is 12 hours
- Normal duty day hours of work are 1800 and ends at 0600 the next day. Established shift hours can be adjusted by coordinating with SOPS Duty Chief as needed. (Ex: seasonal changes or daylight savings)
- Avoid calling ATGS personnel when they are off duty to ensure 8 hours of uninterrupted rest.
- The night ATGS pilot has a maximum duty day of 14 hours of which 8 can be flight hours
- The aircraft can be requested to shuttle helicopter flight crews (pilots and mechanics) for shift changes
- IA response zone

## Incident Operations

The number one priority of this resource is incident airspace management. When supervising aircraft operating with the aid of NVG's aerial supervisors shall be vigilant of any formation or inflow of fog or low clouds as NVG's do not see fog forming or encroaching. This includes travel routes to and from bases of operation and dips sites. The Night ATGS will advise any aircraft operating with NVGs of any fog or low cloud situations. Assume they are on NVG and cannot see the hazard.

The NightWatch crew shall use caution to avoid flying into smoke column(s). Smoke columns may be hard to detect at night when there is little ambient light. The PIC and ATGS shall be extra cautious of hazardous terrain, aerial hazards and must avoid losing situational awareness.

When flight crews are considering recovering to alternative bases of operation, availability of fuel and ordering requirements (i.e. 2 hour call back) need to be factored into the decision.

## **Intelligence, Surveillance, Reconnaissance**

In an effort to standardize and protect sensitive intelligence information, incident staff and ECC's will be sent an email to their respective accounts in conjunction with the SOPS. It will be the responsibility of the ECC/SOPS to further distribute the information in a timely manner to interested parties through local standard procedures. When on large fires this information will also be shared directly to the planning section chief for IMT dissemination. All correspondence will be sent via official USFS email accounts of the ATGS assigned. Emails will include;

**Email Subject Line:** *(example; NightWatch Erskine Fire, CA-SQF-004975, 18 July 2016, 0100*

**Attachments:** screenshots, shape files, video links etc. Make sure all deliverables are named by incident and item (example; Erskine\_DIV\_A.jpg) etc.

**Email Body:** *(example)*

Attached you will find:

- .zip file with the ArcMap Data (shapefile)
- .pdf map
- .kmz Google Earth file

Of the (NAME) Incident that AA-51 flew today at (TIME). At that time acreage was approximately (ACRES). Any questions, comments or concerns please feel free to contact myself at the number below. I can be reached between the hours of (TIME) and (TIME).

## **Duty Day and Transitions**

It is important to understand duty day has a significant impact on the utilization of the Night Air Attack. "Early Up's", shifts beginning before 1800 (1700 during daylight savings), should be avoided as much as possible. For extended attack/large fires every effort should be made to have AA-51 arrive on scene of the incident with enough daylight to assess hazards, terrain, fuel, fire behavior and aerial firefighting activity (familiarization flight). This flight does not need to be any longer in duration than necessary to receive a briefing from the day aerial supervision platform(s). It is common to be requested over an incident to gather situational awareness and conduct a briefing to Operations prior to the morning briefing at ICP(s). This usually occurs between 0500-0600 hours. When practical the Night Air Attack should have a Night to Day transition with the first

day Air Attack. Duty day and cumulative flight hour management can affect the opportunity to have a transition with the “first up” day air attack and the ability to provide constant coverage during critical incident operations. Adjustments to the daytime air attack duty day should be made to accommodate these important transitions.

## **Contract Management**

It is important that all ATGS’s maintain records in accordance with established contract business standards. To assist with this a contract management briefcase will be with the aircraft at all times and consist of the following;

- Contract management binder
- Memory stick
- Interagency Aviation Technical Assistance Directory
- National Night Air Operations Plan
- Night Cooperator frequencies
- ATGS is responsible to complete the following aircraft contract daily forms:
- Aircraft Contract Daily Diary
  - Include duty day experience, ordering issues, incident specific challenges (ex: 6 & 36, flight time issues) and any constructive criticism for the improvement of the program
- Completion of the FS-122, ABS data entry
- Incident Aircraft Cost Summary

## **Maintenance**

When maintenance is performed on the aircraft (routine or unscheduled) contact a USFS maintenance inspector before resuming flight activities.

- Ricky Howe (National AMI, NNOSC Committee) 208-914-0344
- Jon Curtis (R-5 AMI) 916-698-8902
- Jesse Luna (R-5 AVI) 661-723-2584
- Barry Miller (R-5 AVI) 530-356-4324

Unscheduled maintenance of any type, aircraft incident/incident with potential shall be reported to the ECC, SOP’s and AMI listed above and the contract COR. SAFECOM’s shall be completed as soon as the issue is known. The corrective maintenance action(s), and return to contract availability will be approved by the responsible AMI.

## **Training and Certification**

The NightWatch training outline (appendix B) ensures employees are familiar with integrating technology with the aerial supervision role. Once successful performance is demonstrated and review of documentation is complete a certification letter will be provided to the NightWatch ATGS for employee records. Copies of this letter will be submitted to the Steering Committee. The Pacific Southwest Region, Aerial Supervision Program Manager is responsible for issuing these certification letters. Digital copies will be forwarded to the NNOSC Steering Committee Chair.

## **Proficiency Flights**

Proficiency flights ensure the NightWatch crew, aircraft and equipment are operational. ATGS who have not flown a mission within the past 14 days may perform these flights (up to one hour). Before flight, ensure the NightWatch Project Aviation Safety Plan (PASP) is complete and provided to the ANF ECC. Proficiency flights will include the following tasks:

- Utilize the PASP for crew mission briefing
- Perform preflight walk around
- Preflight checklist as requested by pilot
- Power up and operate FLIR
- Initiate standard flight following procedures
- Communicate terrain avoidance measures with pilot
- Assess elevation(s) of FTA
- Assess aerial hazards in the FTA
- Confirm avoidance of smoke column with Pilot
- Operate onboard computer system
- Consistently assess for fog formation
- Proper shut down and stowing of system
- Conduct AAR
- Document training flight narrative in Daily Diary

Training flights can be independent of the helicopter but it is highly encouraged to participate in helicopter proficiency/training flights.



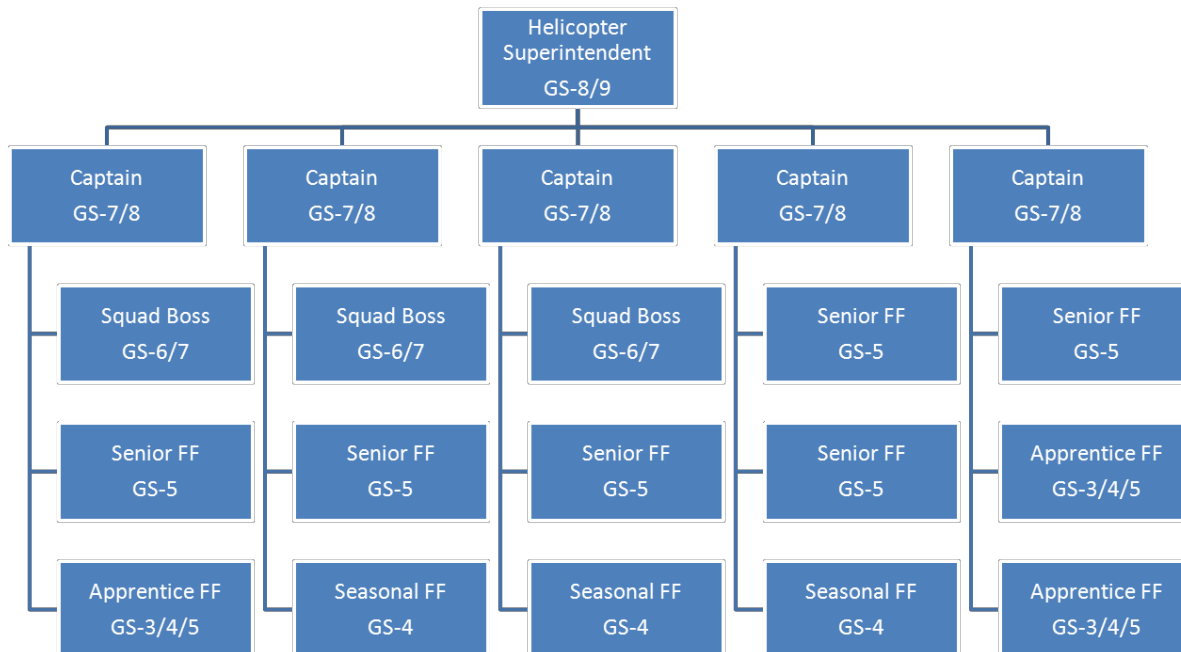
## **ATGS Demobilization**

Fatigue management is a high priority in reducing unnecessary exposure to our employees. Employees will use the most effective methods of travel to reduce fatigue. Employees will adhere to work-rest guidelines when demobilizing from night ATGS assignments (2:1) work rest. It is the responsibility of the ATGS to;

- Coordinate with relief ATGS on needed relief date/time.
- Contact ECC and NOPS with departure travel information.
- TEXT ASPM, FWOS and FWPM with ETD/ETA information.
- Close out with NOPS and Text “Home” to FWOS, ASPM, and FWPM.

## Chapter 2 Night Helicopter Operations

### Crew Organization



### Training

High levels of NVG proficiency, along with a well-balanced NVG experience base, will help to offset many of the visual performance degradations associated with night operations. NVG experience stems from proper training coupled with numerous NVG flight operations. An experienced NVG crewmember should be acutely aware of the NVG operational envelope and its correlation to various operational effects, visual illusions and performance limitations. Continued exposure during the NVG recurrent training will help strengthen and solidify this experience base. NVG currency training needs to include ground evolutions and flight training curriculum.

Currency training shall be conducted at least every 2 weeks for NVG Crewmembers and NVG Managers. It is recommended that Night Operations training be coordinated with the NightWatch platform to enhance the proficiency experience.

Initial and Annual NVG training for every NVG Manager will be from an industry recognized company and will cover all elements in Appendix 3 in FIREScope's Night Flying Guidelines (NFG).

## **Certification**

A list of appropriately trained and documented NVG Managers and NVG Crewmembers shall be sent to the Pacific Southwest Regional Helicopter Program Manager for certification.

## **Duties and Responsibilities**

NVG Helicopter Pilots are an essential part of any aviation mission and must be made an integral part of the team effort whose objective is flight safety. The Pilot is in command of the aircraft and has ultimate responsibility, under both Federal Aviation Regulations and agency regulations, for the safety of the aircraft and its occupants.

- Shall have a current interagency card showing qualification for Night Flying.
- Shall attend Night Flying training annually using the training syllabus in the NFG (Appendix E).

If a night flight has not been accomplished in the last 25 nights, the Pilot shall maintain currency by participating in a currency flight which may utilize NVG crewmembers in ground fill training. This currency training will be documented. See contract for authorization of currency flights for vendor Pilots.

In addition to all duties and responsibilities listed in Chapter 2 of the Interagency Helicopter Operations Guide (IHOG), for Night Operations the Pilot will:

- Complete Night Flying Operational Period Checklist
- Complete the GO/NO-GO Checklist for every NVG Flight Operation
- Sign the GO/NO-GO Checklist
- Helicopter Co-pilot shall meet all experience requirements and training stated in the contract Section C
- Shall attend Night Flying training annually using the training syllabus in the NFG (Appendix 3)

If a night flight has not been accomplished in the last 25 nights, the Co-pilot shall maintain currency by participating in a currency flight which may utilize NVG crewmembers in ground fill training. This currency training will be documented. See contract for authorization of currency flights for vendor Pilots.

NVG Helicopter Manager - an individual who has essential in-flight duties to ensure the safe operation of the aircraft during an unaided flight or NVG flight operation and/or has firefighter duties specifically on Initial Attack fires. The NVG Manager is the keystone to the safety and effectiveness of Helicopter Night Operations. In addition to what is stated in the IHOG for duties and responsibilities for Helicopter Manager, the NVG Manager must:

- Use and document risk management practices for all aspects of night operations.
- Ensure that trained and qualified personnel are assigned to duties.
- Develop and maintain effective communication with Night Flying cooperators.
- Work with cooperators to identify processes and procedures for improving Night Flying Operations.
- Be qualified as a Helicopter Manager (HMGB).
- Attend Crew Resource Management (CRM).
- Meet their corresponding Position Competencies stated in the Fire and Aviation Management Qualifications Handbook (FSH 5109.17).

Receive specialized NVG training and authorization to perform essential in-flight duties to ensure safe operation of the aircraft during NVG flight operations. Complete and sign Appendix A. Daily Operational Risk Assessment and NVG Mission GO/NO-GO Checklist.

To stay current, the individual must perform in the position on a night flying operation every 14 days or complete currency training. Currency training will consist of mission specific elements but can be simulated with the helicopter on the ground.

NVG Crewmembers - In addition to what is stated in the IHOG for duties and responsibilities for Helicopter Crewmember, the NVG Crewmember:

- Shall be a qualified or trainee Helicopter Crewmember.
- Receive specialized training in all subjects outlined in NFG.

To stay current, the individual must perform in the position on a night flying operation every 14 days or complete currency training. Currency training will consist of mission specific elements but can be simulated with the helicopter on the ground.

## **Equipment**

Night Vision Goggles (NVG's) are a head-mounted, lightweight, and self-contained binocular appliance that amplifies ambient light. NVG are worn by Pilots and essential aircrew members to enhance the person's ability to maintain visual reference to the surface and see and recognize aerial hazards.

Night Vision Goggles must meet the requirements stated in the FAA's Technical Standard Order (TSO-C164) which requires the minimum performance standards (MPS) set forth in Section 2 of RTCA Document No. (RTCA/DO)-275 and Minimum Operational Performance Standards for Integrated Night Vision Imaging System Equipment, dated October 12, 2001.

All NVG equipment will be maintained at manufacture's specifications.

## **Operational Planning**

The Incident Commander or Incident Management Team needs to be aware of duty and hourly flight limitations. The only night helicopter mission approved is water/retardant dropping and flights supporting this mission, i.e. transporting essential Helitack Crewmembers to the helispot to fill the helicopter tank and training flights.

- Flights will be conducted under VFR conditions.
- For aircraft equipped with an operational searchlight there is no minimum illumination value that will restrict the helicopter from flying at night.
- Pilot and Co-Pilot shall be well rested and have 10 hours off-duty preceding the start of their shift.
- Helicopter Pilot flight time (including day, night and NVG) will not exceed a total of six (6) hours per night.
- Helibase and helispot location requirements are more stringent than in daylight (see below).
- Pilot night flying currency must be maintained.
- Only ground based water-fill operations from pre-designated or approved helispots will be permitted (no hover-filling).
- Approved helispots are to flown by the Pilot in the daytime prior to use at night. This can be accomplished pre-season and during the season. The only exemption to this requirement is if the helispot is a lighted public airport.
- The forests will be responsible for periodic checks and notification of any changes to the helispots.
- The NightWatch aircraft has no additional limitations for missions at night and shall adhere to agency policy and Federal Aviation Regulations.

## **Pre-initial attack**

Initial Attack Planning should be accomplished prior to the incident so that night flight operations can focus on the mission. Aerial hazard maps of the forests will be available for use. Electronic devices (not all electronic devices are compatible with Night Vision Imaging Systems) can and should be used in replacement of paper maps.

- Helitack personnel and Pilots shall be familiar with the Night Flying Operations Risk Assessment and Mitigation Plan.
- Cooperation with other agencies in Night Flying is of utmost importance. Cross training and multi-agency training is encouraged to promote standardization and safety.
- Helitack personnel and Pilots shall participate with cooperators during night flying incident simulation drills.
- Chief Officers and Forest Aviation Officers shall keep telephone numbers of local cooperators that fly helicopters at night for coordination of helibases and helispots during

initial attack. Helitack shall have the capability to monitor Automated Flight Following (AFF) at temporary helibases.

- Ensure standard hose compliment and hose adaptors/fittings are onboard aircraft.
- The Daily Operational Risk Assessment & Go/No-Go Checklist shall be completed.
- Load Calculations will be completed with each shift change and as required by policy.
- Manifests will be completed daily and as required.
- When the helicopter is at the host base, the Forest Service shall provide the contractors an adequate area for the pilots to rest.

## **Initial Attack**

Night air operations are an appropriate use for NVG approved helicopters and Aerial Supervision aircraft. Certain procedures, which vary from daylight air operations, must be followed to assure the greatest margin of safety. During night operations a Temporary Flight Restrictions 91.137 (TFR) shall be ordered as needed or when requested by the Helicopter Manager; or assigned ATGS.

## **Briefing**

At a minimum all pilots and Helitack personnel will be briefed on and understand:

- Night Flying organizational chart and responsibilities.
- Current and forecasted weather and illumination levels.
- Flight following procedures.
- TFR's.
- Other aircraft and their designators.
- Flight routes.
- Check-in points.
- Aerial hazards.
- Including known migratory bird paths.
- Communications Plan.
- Command
- Air/Ground
- Air Tactical
- Ground Tactical
- Contacts.
- Air to Ground Interactions between pilots and ground personnel.
- Reinforce the need for brevity in radio communications
- Traffic routes (vehicle, personnel and aircraft).
- Helibase personnel assignments.
- Pilots warned of dangers of directing drops directly over crews.
- Reinforce the need to continually assess the risk versus gain and element.

- Communications and Coordination

## **Aircraft Base Radio Operator (ABRO) and Helispot Manager (HESM)**

- Responsible for directing and coordination of the take-offs and landings of helicopters at helibase and/or helispots.
- Coordination of take-offs and landings of helicopters shall use an uncongested/discrete channel.

## **ABRO and NVG Parking Tender**

- NVG Parking Tenders are mobile and require an adaptor to connect the flight helmet with their handheld radio.
- NVG Parking Tender will have available lighted wands to assist in take-offs and landings.
- If it is determined that a NVG Parking Tender is not necessary, the position will not be filled. This decision will be made by the NVG Manager with Pilot concurrence.

## **NVG Helicopter Manager**

- This person is the point of contact for the Incident Commander (IC), Operations Section Chief (OSC) and/or Air Operations Branch Director (AOBD), as well as the dispatch center requesting helicopter missions.
- Control over helicopter operations.
- Coordinates helicopter missions with the helibase, OSC and/or AOBD.
- Helicopter and Fireline Coordination
- This involves the helicopter(s) and fireline personnel.
- When possible make positive communication with ground Point-of-Contact prior to takeoff.
- Ground radio traffic should be handled by the Division Group Supervisor when possible to eliminate confusion and limit the amount of hand-offs of the aircraft.
- Emergency back-up communication between the helicopter(s) and helibase; can be met by monitoring Air Guard frequency.

## Flight Following

- Flight Following will be accomplished per California Mobilization Guide (Chapter 28) standards for mission flight following.
- Flight following will be done by check-ins every 15 minutes. This can be accomplished by utilizing Automated Flight Following (AFF) and/or radio contact.
- Flight Following will be documented on the Form HBM-9 or utilizing local forms and procedures for aviation missions.
- During Night Flying Operations there will be an appropriately staffed dispatch center. Only the Angeles, San Bernardino and Monte Vista ECC's are staffed 24-hour per day on a regular basis.
- Helitender shall be equipped to monitor AFF when on remote helibases.

## Helispots/Helibases

On helispots, one person will be designated as the Helispot Manager. That person is responsible and will ensure the following:

- The Helicopter Manager and Pilot shall concur on the use of any new or existing helispots.
- The nighttime Pilot shall perform a daylight reconnaissance of the helispot prior to use. The only exemption to this requirement is if the helispot is a lighted public airport.
- All required NVG positions filled by NVG qualified personnel.
- Communication plan shall be established and known with other helitack.
- All aerial hazards on incident, helispots and helibase vicinity shall be identified and briefed.
- Helicopter approach and departure paths established and known.
- Located in an area free of aerial hazards in the approach and departure paths.
- At a minimum, three trained NVG personnel will staff helispots.
- On multi-aircraft helispots, there shall be a minimum of 75 feet separation between rotor tips.
- Traffic control established (vehicle, personnel and aircraft).
- Approach/departure paths and holding patterns shall be designated and known to all pilots.
- Dust abatement measures taken.
- Appropriate size landing site (see IHOG Chapter 8) shall be secured
- 20' x 20' landing pad
- 90' Safety Circle
- Ground fill operations shall be initiated.
- Landing site shall be properly illuminated with:



- Four corners of each landing pad should be marked with a yellow or red (not green) cyalume light stick or other lighting device.
- Flashing/emergency vehicle lights may be used as navigational aids or target designators, but should be turned off upon pilot's request.
- Parking Tenders shall have lighted wands to assist, as needed, in landings and takeoffs.
- Security measures (traffic control, bystander access, unauthorized personnel) shall be in place.

## **Water Drops**

- A high level reconnaissance for aerial hazards will be done over every fire.
- A "dry run" will be made before each series of drops in a new area looking for hazards and personnel.
- The siren will be used for live runs.
- Minimum altitude for water-drops will be fifty (50) feet.
- Tight turns after drops should be avoided to prevent excessive rotorwash on the fire and to avoid spatial disorientation.
- Water-drops should not intentionally be made directly on fire suppression crews.

## **Emergencies**

For appropriate fire protection and crash-rescue see IHOG Chapter 12. NVG personnel shall train for emergencies on helispots. NVG Personnel shall be trained in the proper use of fire extinguishers and crash rescue tools for aircraft fires. This training should include practical exercises extinguishing small Class B fires with different types of extinguishers.

- Crash/Rescue plan prepared and posted.
- All personnel briefed.
- Fire rescue equipment present and operational.

## **After Action Review**

It is essential to learn from mistakes and to capitalize on successes. The price for failure can be exceptionally high and the amount of effort put into successes is often left unrecognized. The objective of the After Action Review is to immediately identify these successes and failures. Once they have been recognized, further exploration allows the team to perfect its skills and be better prepared for future endeavors.

After each fire an After Action Review (AAR) will be completed and documented in a log. An AAR for Aviation Operations follows the standard AAR format of what was planned, what actually happened, why it happened, and what can we do better next time, with some helpful additional talking points.

# Appendix A-Hazard Maps

<p><a href="#">ANF-NORTH</a></p> 	<p><a href="#">SAN BERNARDINO NORTH</a></p> 
<p><a href="#">ANF-SOUTH</a></p> 	<p><a href="#">SAN BERNARDINO SOUTH</a></p> 
<p><a href="#">CLEVELAND NORTH</a></p> 	<p><a href="#">SEQUOIA NORTH</a></p> 
<p><a href="#">CLEVELAND SOUTH</a></p> 	<p><a href="#">SEQUOIA SOUTH</a></p> 
<p><a href="#">LOS PADRES NORTH</a></p> 	<p><a href="#">SIERRA</a></p> 
<p><a href="#">LOS PADRES SOUTH</a></p> 	<p><a href="#">STANISLAUS</a></p> 
<p><a href="#">SOUTH OPERATIONS DPA</a></p> 	

## Appendix B-NightWatch OJT

### Initial/Refresher Training Outline

ATGS NAME	INITIATION DATE
-----------	-----------------

#### Classroom and Ground Training

- Review the National Night Air Operations Plan, Fire Scope Night Flying Guide and the Night Air Attack Standard Operations Guide
- Night Vision Goggle (NVG) capability and limitations training (annually)
- Contract management review
- Cockpit orientation and pilot safety briefing
- Night air attack mission profiles, terrain avoidance and SOCAL airspace
- Night air attack staffing, roles, responsibility, dispatch protocol & mobilization
- Demonstrate proficiency with ABS payment system
- Demonstrate ability to document process
- Introduction/review of narration script and fire/geographical orientation
- Introduction/review separation of duties and communication between ATGS and sensor operator
  - 2 monitor functions in tech position
  - Front monitor slaved to back GeoFOCIS monitor

#### Navigation and Mapping

- Aircraft GPS(s): waypoints, navigation and change field data
- After pilot gives notification of power, demonstrate start up sequence for the technology (using GPU)
- Verbalize as radio and ICS traffic allows when tech startup is complete and functioning correctly
- Ability to operate the Geo FOCIS mapping system;
  - map display interpretation
  - icons
  - select desired map layers
  - map manipulation (mouse or touch screen)
  - overlay shape files (fire perimeters from FTP site)
  - live function
  - “go to” function
  - locate function
  - enter waypoints/markers
  - perimeter “mapping”
  - area calculation
  - save points/perimeter
  - screen capture
  - record video
  - use playback function to ensure successful record
- Ability to coordinate with ATGS regarding desired information, view, measurement etc.

#### FLIR 380HDc

- Demonstrate operational proficiency with the FLIR 380/HDc system
- Cooler time
- Georeferenced laser use (target identification, laser lock)
- Laser range finder (LRF) lat/long and accuracy
- Laser safety and troubleshooting (common problems and “fixes”)
- Heading bugs information and interpretation
- Color sensor adjustment
- IR sensor adjustment
- Focus, gain and level adjustments
- Over nadir
- NUC
- Information display information

- Gimbal
  - power requirements and low voltage
  - cage and stow functions
  - timing of cage and stow (RTB)
  - care

**Data Recorder Use**

- Understand the operation of the Digital Video Data Recorder
- Coordinate with ATGS on priorities of tactical needs vs. product needs
- Communicate with ATGS/pilot regarding intent to record a video
- Coordinate with pilot/ATGS for desired aircraft track
- Record video using the standard narration:
  - Air Attack 51
  - Incident Name
  - Date/Time
  - General Fire Location; reference to:
    - geographical feature for viewer orientation (initial attack)
    - DIVS (large fire) and geographical reference if appropriate
  - Specific fire anatomy
  - Narration
- Things to strive for: brevity, picture clarity (focus, right camera, gain, level), stabilization, HDIR and SWIR.
- Create folder on Capstore for products (ex: Sand 7/15 for multi shift incident)
- Name products (ex: Sand fire DIVS B spot)
- Transfer products from Capstore to thumb drive
- Communicate intent to shut down tech
- Tech shut down sequence (once cleared active); verbalize when shut down is complete

**Data Transfer and Delivery**

- Move products from thumb drive to laptop
- Edit video
- Upload products to Google drive
- Information delivery
  - use standard email format
  - deliver to Regional list
  - deliver to appropriate ECC and/or IMT member(s)
  - inform dispatch center of product delivered
  - if products are from an initial attack, request forward to appropriate personnel

**AAR / Debrief**

- Pilot, ATGS and tech operator
- ATGS contact 531 for shift debrief (tech operator participate as appropriate)

**Completion Signoff**

POSITION	NAME	SIGNATURE	DATE
Trainer			
Trainee			

*Records to be kept by employee and R5 Aerial Supervision Program Manager.*

## Appendix C-Forms

NIGHTTIME OPERATIONAL CHECKLIST					
DATE:		TIME:		SUNSET:	
PILOT:		MANAGER:			
MIRRORS REMOVED:				<input type="checkbox"/>	
AIRCRAFT CABIN LOOSE ITEM CHECK				<input type="checkbox"/>	
NVG INSTALLED, CHECKED AND FOCUSED				<input type="checkbox"/>	
WEATHER/ILLUMINATION CHECK COMPLETE				<input type="checkbox"/>	
NIGHTTIME OPERATIONAL BRIEFING COMPLETED				<input type="checkbox"/>	
NVG MISSION GO/NO-GO CHECKLIST					
MISSION:		LOCATION:		TIME:	
				GO	NO-GO
MISSION NOTIFIED TO HOST CHIEF OFFICER:				<input type="checkbox"/>	<input type="checkbox"/>
NIGHTTIME OPERATIONAL CHECKLIST COMPLETE: (Top section)				<input type="checkbox"/>	<input type="checkbox"/>
WEATHER BRIEFING/MINIMUMS MET: (Appendix B)				<input type="checkbox"/>	<input type="checkbox"/>
AERIAL HAZARD MAP/MTR REVIEWED:				<input type="checkbox"/>	<input type="checkbox"/>
COMMUNICATIONS PLAN CONFIRMED:				<input type="checkbox"/>	<input type="checkbox"/>
ALTERNATE LANDING SITE/AIRPORT IDENTIFIED: (Appendix B)				<input type="checkbox"/>	<input type="checkbox"/>
OPERATIONAL RISK MANAGEMENT COMPLETED (Appendix C)				<input type="checkbox"/>	<input type="checkbox"/>
MISSION DETAILS BRIEFED:				<input type="checkbox"/>	<input type="checkbox"/>
PPE DONNED AND BUDDY CHECKED:				<input type="checkbox"/>	<input type="checkbox"/>
<b>SIGNATURE CONFIRMS THAT ABOVE CHECKLIST HAS BEEN COMPLETED</b>					
PILOT:		MANAGER:			
ENGAGEMENT CRITERIA TO BE ASSESSED CONTINUALLY					
<input type="checkbox"/>	Lives are or will be threatened.				
<input type="checkbox"/>	Structures are or will be threatened.				
<input type="checkbox"/>	Resources of significant economic values are or will be threatened.				
<input type="checkbox"/>	Excessively high suppression cost will be prevented.				
<b><i>One or more of the above four criteria shall be yes</i></b>					

# Pre-Flight Weather Observation

To be completed prior to any nighttime flight

<b>Date</b>		<b>Time</b>				
<b>PIC</b>		<b>CO-Pilot</b>				
<b>Manager</b>		<b>Illumination</b>				
<b>Dispatch Information</b>						
<b>Departure</b>	<b>Ceiling</b>	<b>Visibility</b>	<b>Wind</b>	<b>Temperature</b>	<b>Dew Point</b>	<b>Altimeter</b>
<b>Destination</b>	<b>Ceiling</b>	<b>Visibility</b>	<b>Wind</b>	<b>Temperature</b>	<b>Dew Point</b>	<b>Altimeter</b>
<b>En-route</b>	<b>Ceiling</b>	<b>Visibility</b>	<b>Wind</b>	<b>Temperature</b>	<b>Dew Point</b>	<b>Altimeter</b>
<b>Alternate</b>	<b>Ceiling</b>	<b>Visibility</b>	<b>Wind</b>	<b>Temperature</b>	<b>Dew Point</b>	<b>Altimeter</b>

# Operational Risk Management (ORM)

## ORM Assessment Chart

To be completed by prior to any nighttime flight

Considerations	Value	Questions
<p><b>CURRENCY (Last Flight)</b></p> <ul style="list-style-type: none"> <li>➤ Less than 3 Days</li> <li>➤ 3-7 Days</li> <li>➤ Greater than 8 days</li> </ul>	<p>+0</p> <p>+3</p> <p>+8</p>	<p>Have you been to this destination before? Yes / No</p> <p>How recently?</p>
<p><b>WEATHER</b></p> <ul style="list-style-type: none"> <li>➤ 3,000' to 5 sm.</li> </ul>	<p>+5</p>	<p>What are the weather conditions?</p> <p>How confident are you in knowing of the weather along the route?</p> <p>Have you thought through the entire mission?</p>
<p><b>NIGHT</b></p> <ul style="list-style-type: none"> <li>➤ During any portion of flight</li> </ul>	<p>+5</p>	<p>Are there any issues with the aircraft which may be a factor in the mission?</p>
<p><b>LOCATION OF FLIGHT</b></p> <ul style="list-style-type: none"> <li>➤ ANF, BDF, CNF, LPF</li> <li>➤ New Location</li> <li>➤ Non Local</li> </ul>	<p>+0</p> <p>+3</p> <p>+4</p>	<p>Do you feel fully rested and capable to accept the mission?</p>
<p><b>EARLY MORNING</b></p> <ul style="list-style-type: none"> <li>➤ Flight time conducted between 0200 and 0500</li> </ul>	<p>+1</p>	<p>Do you have any reservations about accepting this mission?</p>
<p><b>TOTAL</b></p>		<p><i>A TOTAL of 20 or greater requires greater operational control or no-go</i></p>

## Pre-Flight Preparation for NVG Use

### A. Battery Installation

**CAUTION:** Be sure the power module is switched off before installing batteries. Ensure only 1.5 Vdc AA Alkaline batteries are used.

1. Push the battery pack doors up (open)
2. Remove the cartridge containing the two 1.5 Vdc AA batteries.
3. Check to make sure the interior of each battery compartment is clean.
4. The required polarity for the battery is illustrated on the inside of the cartridge module.
5. Insert the battery cartridges into the battery pack and close the battery pack doors.

**NOTE:** Make sure to use a fresh (no-time battery) in the alternate compartment before beginning a mission. Some batteries that have been used still have many hours of life remaining, make sure to install these used or “time” batteries in the primary compartment.

### B. Low-Battery/Electrical Check

1. With good batteries installed in both compartments of the low profile battery pack, remove the battery cap on the left compartment.
2. Turn the power switch to the alternate ON position. The low-battery indicator should blink.
3. Return the switch to the OFF position (middle) and replace the battery cap.
4. Remove the battery cap on the right compartment.
5. Turn the power switch to the primary ON position. The low-battery indicator should blink.
6. If the low-battery indicator fails to blink, switch the primary and alternate batteries and repeat this test.
7. With helmet on, select primary power and make sure both tubes are green. Then repeat with secondary power.

### C. Attaching the Binocular Assembly to the Helmet Mount Assembly

1. Make sure the power switch is turned OFF.
2. Hold the binocular assembly with both hands at approximately a 30 degree angle so the eyepieces face you. Slide the spring loaded ball bearings of the fore-and-aft assembly into the mount channels until they lock in place.
3. Rotate the binocular assembly to the up and lock position.

### D. Preparing the Helicopter for Night Operations

One hour prior to official sunset, (utilizing the interagency aircraft sunrise/sunset chart) the aircrew shall:

1. Inspect the helicopter(s) to ensure that there are no loose items in the cabin.
2. Remove mirrors.
3. Remove the hover-pump/snorkel system from the fixed-tank.

**NOTE:** Once the aircraft has been configured and inspected, **no** items shall be added or removed from the aircraft without the crew chief and pilot’s approval.

**NO EXCEPTIONS.**



# Helicopter Night Operations Training Plan

NVIS Crewmembers must complete Helicopter Crewmember Training (S-271), Crew Resource Management and the Night Vision Imaging Systems (NVIS) Initial or Refresher Training. Crewmembers must also complete one hour NVIS practical training with the aircraft.

NVIS Crewmembers must complete initial training (8-hour) on the following subjects and a hands-on practical portion, prior to assignment to NVIS operations.

## NVIS Ground Training

1. Pre-flight preparations
  - a. Aeromedical factors
  - b. NVIS characteristics
  - c. Terrain Interpretation
  
2. Operations
  - a. System setup and aircraft interface
  - b. Communication considerations
  - c. Aircraft lighting systems
  - d. Hazards
  - e. Obstacles
  
3. Weather
  - a. Limitations associated with aided vision
  
4. Emergency Procedures
  - a. NVIS failure
  - b. IIMC (Inadvertent Instrument Metrological Conditions)
  - c. Communications failure

# Night Training Exercise

## EXERCISE OVERVIEW

### Helicopter Night Flying Helispot Operations Field Training

## WATER GROUND FILL

### Objectives

1. Prepare a helispot for safe night operations.
2. Use proper procedures for set up and use of fire hose and brass from fixed water point to helicopter with knowledge of and ability to use lateral line as protection and/or dust abatement
3. Marshall the helicopter using hand signals while having positive radio communication with helicopter through flight helmet adapter.
4. Demonstrate ability to place lights safely around safety circle for use by night vision goggles.

### Purpose

The field exercises will help students to perform the duties of the HECM through hands-on application.

This field exercise is not optional and each student will be assessed on their performance of the series of tasks practiced in the field exercise.

### Instructional Methods

- Facilitate and Demonstrate operation procedures
- Additional qualified instructors to serve as coaches

### Instructional Aids

- Helicopter/Pilot carded to perform the specific exercise
- Outdoor location (large enough to accommodate exercise stations).
- Incident Response Pocket Guide (IRPG)
- Interagency Helicopter Operations Guide (IHOG)

In the event a helicopter is not available, the classroom can be utilized. Arrange chairs to resemble the seating of a helicopter for loading and unloading HECMs and firefighting equipment.

### Exercise

- Helicopter hands-on stations

## **Evaluation Methods**

- Observation
- Student Field Exercise Evaluation Performance
- After Action Review (AAR)

## **Outline**

- I. Field Exercise Briefing
- II. . Exercise Stations

## **Unit Presentation**

UNIT: 1 - Field Exercise

## **Present unit objectives**

### **Introduce coaches and their exercise station.**

#### **I. FIELD EXERCISE BRIEFING**

The purpose of this field exercise day is to provide the students with actual hands-on experience, helicopter night flying operations and to safely conduct helicopter functions they will be required to perform in the field. Students should complete this day with complete confidence in their performance of the duties of a helicopter crewmember.

Coaches will be assigned to each station to assist and oversee the student performance. Coaches will evaluate student's performance by initialing the field exercise evaluation indicating that the function has been performed successfully.

Students will need to successfully complete all items listed on the field exercise evaluation a minimum of two times (twice) to complete the course.

#### **OUTLINE AIDS & CUES**

#### **II. EXERCISE STATIONS**

Divide students into equal groups and rotate groups through each of the exercise stations. Initial the student's field exercise evaluation indicating the student successfully completed the exercise. Record additional remarks and/or recommendations on the student's field exercise evaluation. Exercise station 1, 2 and 3 could be conducted simultaneously to accomplish both exercises if desired.

Discuss emergency procedures with pilot and students. Ensure everyone involved knows and understands what is expected of them.

#### **OUTLINE AIDS & CUES**

## **Exercise Station 1-Captain's Responsibilities**

Purpose: To have the Helitack Captain that will sit in the left forward facing window seat aware of roles and responsibilities in night helicopter water drop missions. Students should leave this station with the ability and knowledge to safely oversee the process from initial fire dispatch, helispot selection site use and management, and hazard identification and assessment.

Time: TBD

Format: Students work in small groups of 3 to 5

Materials Needed:

- HMBG
- IRPG
- Line gear

Instructions:

1. Instructors walk students through the process of manifesting, hazard identification and communication, securing equipment, loading and unloading. Reinforce the importance of ensuring the overall safety of passengers. Have students take turns individually for this exercise.

Instructor interjects as needed to assist student.

Ensure students perform the following:

- Wear appropriate PPE
- Receive mock fire dispatch and select most appropriate fire suppression strategy and tactics based on resources threatened/ weather/ visibility/ fire location
- Demonstrate the ability to co-ordinate with 2 HECM ground support crew drivers ensuring drivers arrive at helispot or other pre-determined location and alerting for any changes
- Place order for adequate sized fire engine for crash rescue purposes
- Make assessment with pilots that helispot will be adequate for needs based on visibility/ weather/ winds/ approach and departure paths and fire behavior
- Unload fire line packs, place light sources around helispot for night vision goggles and to mark 90 foot safety circle, assist with completion of hose lay if necessary
- Ensure positive communication by radio between helicopter and all helispot personnel
- Consult with pilots to help make determination if Captain stays on board aircraft during water dropping missions for purpose of hazard identification and assessment

## **Exercise Station 2-Parking Tender**

Purpose: To have HECMs that sit in the left window aft facing seat (opposite the Captain) prepare for night water helispot operations. Students should leave this station with the knowledge to safely and accurately fill the position of Parking Tender

Time: TBD

Format: Students work in small groups of 3 to 5

Materials Needed:

- HECMs
- IRPG
- Fire Extinguisher
- Crash Rescue Kit

Instructions:

Instructors walk students through the process of hazard identification and communication, securing equipment, loading and unloading. Reinforce the importance of ensuring the overall safety of passengers. Have students take turns individually for this exercise.

Instructor interjects as needed to assist student.

Ensure students perform the following:

- Wear appropriate PPE
- Select a safe site at the 1 o'clock position relative to the helicopter with the fire extinguisher and crash rescue kit
- Advise pilot by radio of hazards and wind shifts, use standard hand signals when appropriate
- Maintain security of safety circle by denying entry to non-essential personal and F.O.D.

## **Exercise Station 3 – Hose Lay for Water Point**

Purpose: To have HECMs that sit in the right forward facing window seat prepare for night helicopter water point operations. Students should leave this station with the ability to comfortably and accurately prepare hose lay for water point filling of helicopter fixed tank port by following established procedures.

Time: TBD

Format: Students work in small groups of 3 to 5

#### Materials Needed:

- HECMs
- Manifest forms for each student.
  
- IRPG (Helicopter Passenger Briefing)
  
- Hose (2 2.5 inch 50 foot sections plus 1 2.5 inch 12 foot section) and Brass fittings (2.5 inch cam lock, 1 gated 2.5 inch wye, 2.5 inch nozzle plus hydrant wrench)
  
- Firefighting hand tools

#### Instructions:

Instructors walk students through the process of manifesting, hazard identification and communication, securing equipment, loading and unloading. Reinforce the importance of ensuring the overall safety of passengers. Have students take turns individually for this exercise.

Instructor interjects as needed to assist student.

Ensure students perform the following:

- Wear appropriate PPE
  
- Unload hose, brass and firefighting hand tools from right side of helicopter
  
- Perform hose lay from hydrant with one section of 2.5 inch 50 foot hose. Connect gated wye between this and next section of 50 foot section. Connect fire protection line to other outflow from gated wye. Connect cam lock to helicopter fixed tank.
  
- Be able to send water to the helicopter fixed tank and shut off water flow when helicopter is full by visual means or listening to radio via flight helmet with adaptor.

#### OUTLINE AIDS & CUES

- Loading Procedures after Safety Briefing.
  
  - In-Flight Precautions
  
  - Unloading Procedures
1. When finished, gather group for a short AAR.
  2. Answer any questions or concerns.
  4. Have group move on to the next exercise station.

#### **End of Exercise**

---

# Checklist for Multiple Resources, Helibase

## 1) Organization

An organization chart has been prepared and posted, showing responsibility for functions by name of person responsible.

All helicopter related positions are assigned to personnel fully qualified for the position.

Pilot, aircraft and support personnel meet agency requirements.

## 2) Helibase Operations

Operating procedures have been established for helicopter movement around helibase.

Procedures have been established for maintaining aircraft separation in airspace surrounding helibase.

Flight following procedures have been established. A qualified Helicopter Crewmember has been assigned to each helibase landing pad.

Night Air Operations personnel are properly rested.

## 3) Communications

A communications plan has been completed by the Night Helicopter Manager.

One uncongested air-to-ground frequency has been established.

Radio frequencies and call signs have been posted at the helibase and relayed to the pilots and all helibase personnel.

Designated frequencies on the communications plan have been tested and are fully operational.

All helicopter radios are compatible with the communication plan.

## 4) Briefings

*At a minimum, all Air Operations Division personnel and all pilots have been briefed on, and understand:*

Weather/Illumination value

Overhead responsibilities and authority.

General operating procedures.

Flight following procedures.

Flight routes and check-in points.

Other aircraft and designators.

Area flight hazards.

- Radio frequency assignments and communications plan.
- Interactions between pilots and ground personnel.
- Helibase personnel assignments.
- Incident Action Plan review.
- Overhead and pilots warned of dangers of directing drops directly on crews.

**5) Landing Areas**

- Located in an area with safe approach and departure paths.
- Free of aerial hazards.
- In an area that allows a minimum of 75 feet separation between rotor tips, on multi-aircraft operations.
- Traffic control (vehicle, personnel, aircraft) in place.
- Dust abatement measures taken.
- Proper fueling techniques in place.

**6) Crash/Rescue**

- Crash/Rescue plan prepared and posted.
- All personnel briefed.
- Fire rescue equipment present and operational.
- Map showing flight routes, drop areas, checkpoints, ground access routes and flight hazards posted.

**7) General**

- One-half mile minimum visibility in areas of multiple helicopter operations.



## Optional Use Period

**This checklist shall be used when outside normal Mandatory Availability Period.**

- Pilot in command's Interagency Pilot Qualifications Card is current for Night Flying.
- Aircraft Interagency Fire Card is current for Night Flying.
- Pilots are current with all appropriate FAR's including 61.57 (f)(1).
- All NVIS equipment complies with FAA/manufacture's required inspections.
- Contract Modification for extension.
- Pilots and Helitack together complete at a minimum of one mock-up and live field exercise outlined in the National Night Air Operations Plan until Manager's satisfied with performance.
- Approval letter signed by the Region Aviation Officer.
- Within a year Helitack and Manager have all received NVIS training from an industry recognized company and had covered all elements in Appendix 3 FIREScope's Night Flying Guidelines.

## Pre-Flight Preparation for NVG Use

### E. Battery Installation

**CAUTION:** Be sure the power module is switched off before installing batteries. Ensure only 1.5 Vdc AA Alkaline batteries are used.

1. Push the battery pack doors up (open)
2. Remove the cartridge containing the two 1.5 Vdc AA batteries.
3. Check to make sure the interior of each battery compartment is clean.
4. The required polarity for the battery is illustrated on the inside of the cartridge module.
5. Insert the battery cartridges into the battery pack and close the battery pack doors.

**NOTE:** Make sure to use a fresh (no-time battery) in the alternate compartment before beginning a mission. Some batteries that have been used still have many hours of life remaining, make sure to install these used or “time” batteries in the primary compartment.

### F. Low-Battery/Electrical Check

1. With good batteries installed in both compartments of the low profile battery pack, remove the battery cap on the left compartment.
2. Turn the power switch to the alternate ON position. The low-battery indicator should blink.
3. Return the switch to the OFF position (middle) and replace the battery cap.
4. Remove the battery cap on the right compartment.
5. Turn the power switch to the primary ON position. The low-battery indicator should blink.
6. If the low-battery indicator fails to blink, switch the primary and alternate batteries and repeat this test.
7. With helmet on, select primary power and make sure both tubes are green. Then repeat with secondary power.

### G. Attaching the Binocular Assembly to the Helmet Mount Assembly

1. Make sure the power switch is turned OFF.
2. Hold the binocular assembly with both hands at approximately a 30 degree angle so the eyepieces face you. Slide the spring loaded ball bearings of the fore-and-aft assembly into the mount channels until they lock in place.
3. Rotate the binocular assembly to the up and lock position.

### H. Preparing the Helicopter for Night Operations

One hour prior to official sunset, (utilizing the interagency aircraft sunrise/sunset chart) the aircrew shall:

1. Inspect the helicopter(s) to ensure that there are no loose items in the cabin.
2. Remove mirrors.
3. Remove the hover-pump/snorkel system from the fixed-tank.

**NOTE:** Once the aircraft has been configured and inspected, **no** items shall be added or removed from the aircraft without the crew chief and pilot’s approval.

**NO EXCEPTIONS.**

# Appendix D-Helicopter Standard Operations Guide

To be added

## Appendix E-Initial Action Response Zone

MAP to be added